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L14: Entry 10 of 10

File: USPT

Dec 31, 1985

DOCUMENT-IDENTIFIER: US 4562237 A

TITLE: One component room temperature curable sealant compositionAbstract Text (1):A one component room temperature curable sealant composition comprising:Brief Summary Text (3):

The present invention relates to a one component room temperature curable sealant composition. Particularly, it relates to a one component room temperature curable sealant composition which is useful as a sealing material, an adhesive or an injection molding material and which exhibits good adhesion to various substrates including metal, glass and coated steel sheets and plastics such as a vinyl chloride resin, an acrylic resin or a styrol resin, without requiring a primer coating. More particularly, the composition of the present invention is widely useful as a sealant for various applications, for instance, for sealing the joint of interior or exterior building structures, repairing cracks in mortar or concrete structures, fixing the windshields of automobiles, sealing seams of joined steel sheets, etc., and it can advantageously be applied directly to substrate surfaces such as metal, glass, melamine and acrylic resin surfaces without employing a primer.

Brief Summary Text (5):

As a one component room temperature curable sealant, a silicone or polyurethane sealant is well known. The silicone sealant has advantages such that it has good weather resistance and heat resistance, and its curing speed is high and yet its storage stability is good. On the other hand, it has disadvantages such that a coating composition is hardly applied onto a cured silicone sealant, and it is likely to stain stone materials. Whereas the polyurethane sealant has advantages such that it is superior to the silicone sealant in the curing properties, and it has good comparability with a coating composition and its production costs are relatively low. On the other hand, the polyurethane sealant has drawbacks such that it is inferior in the weather resistance and heat resistance, and its storage stability tends to be poor when it is made to have a high curing speed.

Brief Summary Text (7):

Heretofore, with respect to a one component room temperature curable composition for a sealing material, a coating material, an adhesive and an injection molding material, there has been proposed a composition comprising (A) an addition product of a polyether urethane prepolymer having terminal isocyanate groups and .gamma.-amino-propyltrimethoxysilane and (B) a small amount of N-.beta.(aminoethyl)-.gamma.-amino propyltrimethoxysilane (Japanese Examined Patent Publication No. 5061/1978) as the material containing as the basic component a polyether polymer having a hydrolyzable silicone functional group as its terminal group.

Brief Summary Text (8):

Further, there has been proposed a composition containing as the main component an oxypropylene polymer having a terminal silylether group represented by the formula: ##STR5## (Japanese Unexamined Patent Publications No. 156599/1975 and No. 73998/1977).

Brief Summary Text (9):

However, these compositions had a disadvantage such that they are hardly bonded to the above-mentioned substrates without a primer coating.

Brief Summary Text (10):

Such dispersions are generally known and are described for example in EP-A-667 908.

Suitable compounds (VII) are araphatic C_{6-30} polyamides or araphatic C_{4-30} polyamides or triamides, and polyesters of a C_{6-10} -alkyl alcohol and a C_{6-10} -thiomonoacarboxylic acid, e.g. pen-taerythritol tetrakis-3-mercaptopropionate.

Տեղի ունեցող փոփոխությունները հարմարեցնում են հարկային քաղաքականության հիմնական դրույթները և հարկային օրենսդրությունը՝ հարկային քաղաքականության հիմնական դրույթներին համապատասխան։

the material is applied by spraying, rolling or knife coating and then carrying out the dispersing operation as described above.

Particularly strong adhesive bonds are obtained if workpieces which are provided with a dried adhesive film are heated to about 50°-100° C. immediately before, during or after joining. The adhesive bonds produced by these methods are distinguished in particular by the fact that they are stable and make it possible to produce bonds having high heat resistance. Non assistance.

EXAMPLES

Preparation of a polyurethane dispersion containing a disperse phase P1a

Example 1

350 g of a polypropylene oxide (labeled having an OH number of 50) of a polypropylene oxide (labeled having an OH number of 50) was reacted with 0.5 g of DBTL, 21.4 g of DMA, 27.5 g of decapentaglycol and 140.6 g of TPI at 110 °C for 5 hours. After dilution with 850 g of acetone and cooling to 19 °C, the NCO value was 0.65. After neutralization with 117.9 g of 25% strength NaOH, 380 g of a 50% strength acetone solution of an adduct of 2 mol of acryl acid and 1 mol of bisphenol A bisglycidyl ether were added and the mixture was dispersed with 1200 g of demineralized water. The acetone was distilled off under reduced pressure.

Acrylic content: 0.86 mol/kg solid
Analytical data:
FC: 40%
LD: 95
pH: 8.2
Viscosity: 373 mPa.s
K value in NMP: 44

Example 2

565.5 g of a polyester of adipic acid and butanediol, having an OH number of 45 were reacted with 0.15 g of DBTL and 29 g of TDI in 152 g of acetone for 1 hour at 65°

therafter, 28.6 g of HDI were melted in and the mixture was kept at this temperature for a further 37 minutes. Dilution was effected with 609.9 g of acetone and the mixture was cooled to 50° C. The NCO value was 55%. Chain extension was carried out with 40.9 g of PUD

al, and 380 g of a 50% strength acetone solution of an adduct of 2 mol of acrylic acid with one mol of bisphenol A with 1200 g of demineralized water. After the acetone had been distilled off under reduced pressure, the mixture was dispersed in water. Dispersing was then effected with polyglycidyl ether were added.

Example 3

6532.2 g of poly(pyrrolone oxide) diol (OH-NH=56), 0.5 g of DBTL, 21.5 g of DMAc and 14.8 g of neopentylglycol were added. The mixture was stirred for 2 hours at 110°C. 100 g of acetic acid, 0.1 g of pyridinequinoxaline dimethyl ether and 18.6 g of acetic anhydride were added and the reaction was continued for 1 further 2 hours at 90°C. After dilution with 100 g of acetic acid and cooling to 50°C, the NCO content was 4.8%. Neutralization was effected with 6.4 g of NaOH dissolved in 20 g of demineralized water and dispersing water. The reaction was carried out with 1200 g of demineralized water. The acetone was distilled off under reduced pressure.

Example 4

K value: 33

pH: 8.7

Viscosity: 380 mPas

LD: 91

FC: 40%

Analysis data:

[illegible]

Preparation of a polyurethane dispersion containing a

disperse phase P.II

As additives to improve the adhesion of the polyether polymer having at its terminal a hydrolyzable silicone functional group, there have been known a phenol resin, an epoxy resin (Japanese Unexamined Patent Publications No. 73729/1977 and No. 156599/1975), a polyisocyanate compound having an active isocyanate group (Japanese Unexamined Patent Publication No. 73729/1980) and a triazine ring compound (Japanese Unexamined Patent Publication No. 34154/1982). However, these additives do not necessarily provide adequate effectiveness and have drawbacks such that they are inferior in the water-resistant bonding and durability, whereby there have been problems such that stabilized bond strength is hardly obtainable due to restrictions with respect to the curing catalyst or the mixing conditions, and that no adequate storage stability is obtainable as a one component sealant.

Brief Summary Text (13):

The present inventors have conducted extensive researches to overcome the above-mentioned drawbacks of the conventional sealants and to provide a one component room temperature curable sealant composition which can be applied to various substrates without requiring a primer and which, at the same time, has good water-resistant bond strength, durability and storage stability. As a result, the present invention has been accomplished.

Brief Summary Text (14):

Namely, the present invention provides a one component room temperature curable sealant composition comprising the following components (A), (B) and (C):

Brief Summary Text (33):

The organic titanic acid ester (e) in the present invention serves to substantially improve the bonding when used in combination with the aminoalkoxysilane (a). As specific examples of the organic titanic acid ester, there may be mentioned tetraisopropyl titanate, tetra-n-butyl titanate, butyl titanate dimer and tetra (2-ethylhexyl) titanate. The organic titanic acid ester (e) is added in an amount of from 0.1 to 1.2 mols, preferably from 0.3 to 1.0 mol, relative to the aminoalkylalkoxysilane (a). Stabilized bonding will be hardly obtainable if the amount of the organic titanic acid ester is less or more than the above mentioned range.

Brief Summary Text (35):

The amount of the partial addition condensation product obtained by the reaction of these materials, is preferably within a range of from 0.5 to 10 parts by weight relative to 100 parts by weight of the polyether polymer (A) having a hydrolyzable silicone functional terminal group. If the amount is less than 0.5 part by weight, no adequate effectiveness of the addition is obtainable. On the other hand, if the amount exceeds 10 parts by weight, the curing properties of the sealant composition tend to be impaired and the cost will be increased.

Brief Summary Text (38):

Further, an oxide of a metal belonging to Group II of Periodic Table such as zinc oxide, calcium oxide or magnesium oxide and/or an organic primary amine such as xylylenediamine, hexamethylenediamine or octylamine may be incorporated to the sealant composition of the present invention, as a co-catalyst to adjust the curing speed, as the case requires.

Brief Summary Text (39):

Furthermore, a filler, a plasticizer, a pigment, an aging-preventive agent, a ultra violet ray absorbing agent or a viscosity controlling agent may also be added to the composition of the present invention depending upon the particular purpose of the composition.

Brief Summary Text (41):

As the plasticizer, there may be used commonly employed plasticizers, for instance, phthalic acid esters such as dioctylphthalate, dibutylphthalate or butyl benzyl phthalate; aliphatic dibasic acid esters such as dioctyl adipate, isodecyl succinate or dibutyl sebacate; glycol esters such as ethyleneglycol dibenzoate or pentaerythritol ester; aliphatic esters such as butyl oleate or methyl acetylricinolate; phosphoric acid esters such as tricresyl phosphate or trioctyl phosphate; and chlorinated paraffins. Further, a liquid resin having a molecular weight of from 100 to 10,000 may be used as the plasticizer. As such a liquid resin, there may be mentioned a xylene resin, polybutadiene, polyoxypropylene glycol, polyoxypropylenetriol, a polyester resin, an acryl oligomer, NBR, SBR or polysulfide rubber.

Detailed Description Text (6):

TABLE I

Heat distortion resistance in °C.	Abbreviations		
	Example 4	Example 6	Example 8
	4 × 60	4 × 40	4 × 80; 1 × 90

The heat distortion resistance was determined by means of the peeling strength. After 24 hours, the heat distortion resistance was tested. For this purpose, the ASA film was loaded with a weight of 3000 g at a post-off-angle of 180°. The temperature was increased by 10° C. every 30 minutes. The maximum temperature at which the peeling distance was just less than 50 mm was stated as the heat distortion resistance.

OHN-hydroxy) number
B14-1-butenediol
TDI-methylene diisocyanate
HDI-hexamethylene diisocyanate
PUD-salt-sodium salt of the Michael adduct of acrylic acid and ethylenediamine
DBTL-dibutyltin dilaurate
DMFA-dimethylolpropionic acid
FC-solids content

The viscosities of the dispersions were measured at 20° C. and a shear rate of 250⁻¹ using a rotational rheometer having concentric cylinders (spindle diameter 38.7 mm, cup diameter: 42.0 mm). The particle size of the latex was determined indirectly by means of turbidity measurements. For this purpose, the turbidity of a dispersion having a solids content of 0.01% by weight was determined relative to distilled water with a path length of 2.5 cm and at room temperature. The K value was determined by the method described in Kik-Olmert, *Encyclopedia of Chemical Technology*, Third Edition, John Wiley & Sons, Inc. 1983, Volume 23, page 967. The solvent used was N-methylpyrrolidone.

We claim:
1. An aqueous polyurethane dispersion having latent crosslinking properties and containing
(1) a disperse phase (P1), containing
(2a) a polyurethane (P1U1a) which, in addition to groups which impart water dispersibility to the polyurethane, carries groups which have a C—C double bond in which the double bond is activated by a carbonyl group bonded directly therewith, and
(2b) a mixture of a polyurethane (P1U1b) which carries groups which impart water dispersibility to the polyurethane but in which the double bond is activated by a C—C double bond directly therewith, and

or
(1b) a mixture of a polyurethane (P1U1b) which carries groups which impart water dispersibility to the polyurethane but in which the double bond is activated by a C—C double bond directly therewith, and a compound (V1) which differs from the polyurethane P1U1a and P1U1b, and which carries groups which have a C—C double bond in which the double bond is activated by a carbonyl group bonded directly therewith and
(II) a disperse phase (P2) containing a compound which differs from the compounds (P1U1a), (P1U1b) and (V1) and which carries a plurality of groups selected from the group consisting of the thiol groups, primary amino groups and secondary amino groups.

21.5 g of DMFA were reacted with 152.5 g of TDI for 2 hours at 110° C. After dilution with 977 g of acetone and cooling to 50° C., the NCO content was 0.5%. Neutralization was carried out with 17.9 g of 52% strength NaOH and dispersion was carried out with 1200 g of demethylized water. Immediately after the end of dispersing, 46.9 g of pentaerythritol triethylolacetate was added dropwise. The acetone was distilled off under reduced pressure and the dispersion was brought to a solids content of 35%.
SH content: 0.24 mol/kg
Analytical data:
PC: 35%
LD: 97
Viscosity: 290 mPas
pH: 8.4
K value: 44

Example 6

572.3 g of a polyesterol obtained from adipic acid and ethylene glycol (OHN=42), 0.5 g of DBTL, 21.4 g of DMFA and 38.6 g of 1,4-butanediol were reacted with 167.7 g of TDI for 50 minutes at 110° C. Thereafter, dilution was effected with 977 g of acetone and the mixture was cooled to 50° C. The NCO value was now 0.67%. Neutralization was carried out with 1200 g of demethylized water and dispersing was carried out with 1200 g of demethylized water. Immediately after the addition of 6.4 g of a 45% strength solution of polyacrylic acid (pH=7) in 30 g of water, the acetone was distilled off and the dispersion was brought to a solids content of 40%.

Analytical data:
PC: 40%
LD: 96
Viscosity: 113 mPas
pH: 8.6
K value: undissolved
Preparation of the dispersions containing P1a and P1I

Example 7

The dispersions from Example 1 and Example 5 were mixed in ratios such that equivalent amounts of SH and acrylate groups were present. K value: 45.6
A film was cast and was dried for 3 days at 40° C. K value: 50

Example 8

100 g of the dispersion from Example 4 and 181.2 g of the dispersion from Example 6 were mixed. K value of the mixture: 44.2. The mixture was cast as a film, which was dried for 3 days at 40° C. K value of the film: undissolved. Testing of the performance characteristics of the dispersions investigated by the following method:
The dispersions were thickened with 2% of Colloidal VL each applied in a thickness of 2 mm to 5 hard particle boards (25 cm×3 cm) by means of a knife coater and dried for 3 minutes at 60° C. An ASA film was then pressed on at 0.5N/mm² for 30 seconds at 80° C.

Preparation of a sealant composition

Detailed Description Text (8):

Then, the above-mentioned operation was repeated to obtain two compositions having the same formulation. To the respective compositions, 1 part of the above-mentioned condensation product (b.sup.1) or (b.sup.2) as the partial addition condensation product (B) and 1 part of dibutyl tin acetate as the condensation catalyst (C) were added, and the mixtures were stirred for 30 minutes in a nitrogen stream, whereby 2 sealant compositions were obtained. These sealant compositions were put in sealed containers, respectively, and stored.

Detailed Description Text (10):

The compositions of the present invention prepared in the above-mentioned manner were respectively coated on an aluminum plate, a glass plate, a melamine-coated steel plate and a hard polyvinyl chloride resin sheet in a bead pattern having a thickness of 5 mm, a width of 10 mm and a length of 100 mm to obtain test pieces. These test pieces were cured at 20.degree. C. under a relative humidity of 65% for 7 days at room temperature.

Detailed Description Text (15):

Sealant compositions were prepared in the same manner as in Example 1 except that instead of the condensation product (b.sup.1) or (b.sup.2), .gamma.-aminopropyltriethoxysilane or Epikote 828.RTM. was incorporated. The adhesion and peeling tests were conducted in the same manner as in Example 1. The results are shown in Table 1.

Detailed Description Text (20):

Then, eight sealant compositions were prepared in the same manner as in Example 1 except that instead of the condensation product (b.sup.1) or (b.sup.2) used in Example 1, condensation products (b.sup.3) to (b.sup.10) of Table 2 were respectively used. The sealant compositions were subjected to the adhesion and peeling tests in the same manner as in Example 1. The results are shown in Table 3.

Detailed Description Text (22):

Sealant compositions were prepared in the same manner as in Example 1 except that instead of the condensation product (b.sup.1) or (b.sup.2) used in Example 1, N-.beta.(aminoethyl).gamma.-aminopropyltrimethoxysilane, .gamma.-glycidoxypropyltrimethoxysilane and .gamma.-methacryloxypropyltrimethoxysilane were respectively used. The sealant compositions were subjected to the adhesion and peeling tests in the same manner as in Example 1. The results are shown in Table 3.

Detailed Description Text (26):

Six sealant compositions were prepared in the same manner as in Example 1 except that instead of the condensation product (b.sup.1) or (b.sup.2) used in Example 1, condensation products (b.sup.11) to (b.sup.16) were respectively used. The sealant compositions were subjected to the adhesion and peeling tests as in Example 1. The results are shown in Table 5.

Detailed Description Text (31):

Two sealant compositions were prepared in the same manner as in Example 1 except that instead of the condensation product (b.sup.1) or (b.sup.2) used in Example 1, the condensation product (b.sup.17) or (b.sup.18) was used, respectively. The sealant compositions were subjected to the adhesion and peeling tests in the same manner as in Example 1. The results are shown in Table 6.

Detailed Description Text (34):

The representative sealant compositions prepared in Examples 1 to 4 were respectively coated on aluminum plate on a bead pattern having a thickness of 2 mm, a width of 10 mm and a length of 100 mm, and cured at 20.degree. C. under a relative humidity of 65% for 7 days. Then, the applied sealant compositions were subjected to irradiation of ultra-violet rays for 500 hours by means of a Sun Shine Weather Meter, whereupon the change of surface condition was observed. The results thereby obtained are shown in Table 7.

Detailed Description Text (36):

The representative sealant compositions prepared in Examples 1 to 4 and placed in sealed containers, were subjected to accelerated storage at 50.degree. C. for 30 days. Then, they were brought to 20.degree. C., and their viscosities were measured by a Brook Field Type Rotary Viscometer. The test results are shown in Table 7.

CLAIMS:

1. A one component room temperature curable sealant composition comprising:

(A) a polyether polymer having at its terminal a hydrolyzable silicon functional group represented by the formula: ##STR15## wherein R.sup.I is a monovalent hydrocarbon group having from 1 to 12 carbon atoms, R.sup.II is a monovalent hydrocarbon group having from 1 to 6 carbon atoms, and n is an integer of 0 to 2;

(B) a partial addition condensation product of:

(a) an aminoalkylalkoxysilane represented by the formula: ##STR16## wherein R.sup.1 is a divalent hydrocarbon group having from 1 to 4 carbon atoms, each of R.sup.2 and R.sup.3 is a monovalent hydrocarbon group having from 1 to 4 carbon atoms, Z is a hydrogen atom or an aminoalkyl group, and a is an integer of 0 or 1, with

(b) an epoxy compound containing at least one epoxy group in its molecular structure and having a molecular weight of from 100 to 1,000 and an epoxy equivalent of from 100 to 500, wherein 0.3-1.0 equivalents of epoxy are used per equivalent of aminoalkylalkoxysilane,

(c) a compound selected from the group consisting of
.gamma.-glycidoxypropyltrimethoxysilane, .gamma.-glycidoxypropylmethyldiethoxysilane, 3,4-epoxycyclohexylethyltrimethoxysilane, .gamma.-methacryloxypropyltrimethoxysilane .gamma.-methacryloxypropylmethyldimethoxysilane,

(d) an alkoxysilane selected from the group consisting of vinyltrimethoxysilane, vinyltriethoxysilane, .gamma.-mercaptopropyltrimethoxysilane, .gamma.-chloropropyltrimethoxysilane, vinyl tris (.beta.-methoxyethoxy) silane, dimethyl dimethoxysilane, methyltriethoxysilane, tetramethoxysilane, dimethyldimethoxysilane, methyltriethoxysilane, tetraethoxysilane, diphenyldimethoxysilane, and phenyltrimethoxysilane; and

(e) an organic titanic acid ester; or a mixture thereof, and

(C) a condensation catalyst of a silanol compound.

2. The one component room temperature curable sealant composition according to claim 1, which comprises 100 parts by weight of the polyether polymer (A), from 0.5 to 10 parts by weight of the partial addition condensation product (B) and from 0.05 to 5 parts by weight of the condensation catalyst (C).

3. The one component room temperature curable sealant composition according to claim 1, wherein the partial addition condensation product is a condensation product of one equivalent of the aminoalkylalkoxysilane (a) with from 0.3 to 1.0 equivalent of the epoxy compound (b), from 0.03 to 2.6 equivalent of the compound (c), from 0.03 to 2.6 equivalent of the alkoxysilane (d), and from 0.1 to 1.2 equivalent of the organic titanic ester (e) or a mixture thereof.

4. The one component room temperature curable sealant composition according to claim 1, wherein the polyether polymer (A) has a principal chain comprising repeating units represented by the general formula --R--O-- where R is a divalent alkylene group having from 2 to 4 carbon atoms.

5. The one component room temperature curable sealant composition according to claim 1, wherein the polyether polymer (A) is a reaction product of a polyether urethane prepolymer having a terminal isocyanate group and .gamma.-aminopropyltrimethoxysilane, .gamma.-aminopropyltriethoxysilane or .gamma.-mercaptopropyltrimethoxysilane, or an oxypropylene polymer having a terminal silylether group represented by the formula:
##STR17##

6. The one component room temperature curable sealant composition according to claim 1, wherein the aminoalkylalkoxysilane (a) is selected from the group consisting of aminomethyltriethoxysilane, N-.beta.-(aminoethyl) aminomethyltriethoxysilane, aminomethyldiethoxysilane, N-.beta.-(aminoethyl) methyltributoxysilane, .gamma.-aminopropyltriethoxysilane, .gamma.-aminopropyltriethoxysilane, .gamma.-aminopropyltriethoxysilane, .gamma.-aminopropyltriethoxysilane, N-.beta.-(aminoethyl).gamma.-aminopropyltriethoxysilane, N-.beta.-(aminoethyl)

United States Patent [19]

Saito et al.

4,429,076

Jan. 31, 1984

Best Available Copy

[11]

[43]

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Primary Examiner—J. Ziegler

Attorney, Agent, or Firm—Birch, Stewart, Kolasch & Birch

ABSTRACT

A thermoplastic polymer composition containing (i) a modified block copolymer of an aromatic vinyl compound and a dicarboxylic acid or the derivative thereof, or the ionically crosslinked product of the modified block copolymer with a univalent, bivalent or trivalent metal ion and (ii) a thermoplastic polymer having a polar group. This thermoplastic polymer composition has excellent mechanical and other properties. The compatibility of each component in the thermoplastic composition is remarkably improved.

49 Claims, No Drawings

[54] THERMOPLASTIC POLYMER COMPOSITION

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[21] Appl. No.: 157,167

[22] Filed: Jun. 6, 1980

[30] Foreign Application Priority Data

Jun. 13, 1979 [JP] Japan
Feb. 16, 1980 [JP] Japan
Feb. 16, 1980 [JP] Japan
Feb. 16, 1980 [JP] Japan
Feb. 16, 1980 [JP] Japan
Feb. 22, 1980 [JP] Japan
[31] Int. Cl.
[32] U.S. Cl.
525/66; 525/78; 525/80; 525/88; 525/92; 525/94; 525/301
525/78, 80, 88, 92, 94
[58] Field of Search

8,11,14

Self article

.gamma.-aminopropylmethyldimethoxysilane, and [{N-.beta.(aminoethyl)}
N-.beta.(amonoethyl)] .gamma.-aminopropyltrimethoxysilane.

7. The one component room temperature curable sealant composition according to claim 1, wherein the epoxy compound (b) is a bisphenol A type epoxy compound.

8. The one component room temperature curable sealant composition according to claim 1, wherein the organic titanic acid ester is selected from the group consisting of tetraisopropyl titanate tetra-n-butyl titanate, butyl titanate dimer and tetra (2-ethylhexyl) titanate.

9. The one component room temperature curable sealant composition according to claim 1, wherein the condensation catalyst (C) of a silanol compound is selected from the group consisting of an organic silicone titanate, stannous octoate dibutyl tin diacetate, dibutyl tin dilaurate and dibutylamine-2-ethylhexoate.

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Search Results - Record(s) 1 through 5 of 5 returned.

☐ 1. Document ID: US 6274693 B1

L2: Entry 1 of 5

File: USPT

Aug 14, 2001

US-PAT-NO: 6274693

DOCUMENT-IDENTIFIER: US 6274693 B1

TITLE: Method for producing a two-layer coating and suitable enamel therefor

DATE-ISSUED: August 14, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Poth; Ulrich	Munster			DE
Wiatr; Barbel	Munster			DE

US-CL-CURRENT: 528/45; 427/385.5, 427/407.1, 544/224, 560/158

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 2. Document ID: US 6060573 A

L2: Entry 2 of 5

File: USPT

May 9, 2000

US-PAT-NO: 6060573

DOCUMENT-IDENTIFIER: US 6060573 A

TITLE: Polyisocyanates blocked with CH-acidic esters and stabilized against thermal yellowing

DATE-ISSUED: May 9, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
König; Eberhard	Leverkusen			DE
Kobusch; Claus	Meerbusch			DE
Kuttner; Wolfram	Bergisch Gladbach			DE

US-CL-CURRENT: 528/45; 252/182.2, 524/770, 524/772, 528/73, 560/158, 560/331

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 3. Document ID: US 5039720 A

L2: Entry 3 of 5

File: USPT

Aug 13, 1991

US-PAT-NO: 5039720

DOCUMENT-IDENTIFIER: US 5039720 A

TITLE: Aqueous electrophoretic enamel coating materials, which can be deposited at the cathode crosslinked with methane tricarboxylic acid amides of malonic acid derivatives

DATE-ISSUED: August 13, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Saatweber; Dietrich	Wuppertal			DE
Hendriux; Georg	Wuppertal			DE
Brindopke; Gerhard	Sulzbach/Ts			DE
Plum; Helmut	Taunusstein			DE

US-CL-CURRENT: 523/404, 523/407, 523/408, 523/410, 523/414, 523/415, 523/417, 523/420, 525/111, 525/113, 525/504, 528/119, 528/120, 528/45, 528/73

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 4. Document ID: JP 07207223 A

L2: Entry 4 of 5

File: JPAB

Aug 8, 1995

PUB-NO: JP407207223A

DOCUMENT-IDENTIFIER: JP 07207223 A

TITLE: THERMOSETTING COATING COMPOSITION

PUBN-DATE: August 8, 1995

INVENTOR-INFORMATION:

NAME	COUNTRY
MORIYA, YOICHI	
MARUYAMA, CHIKASHI	
SHIBAFUJI, KISHIO	
PEBTAA, BETSUTSU	

INT-CL (IPC): C09 D 175/04; C09 D 161/32; C08 F 290/06; C08 G 18/62

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KIMC

☐ 5. Document ID: DE 2342603 A BE 819042 A DE 2342603 B DK 7404494 A FR 2241573 A GB 1442024 A IT 1018973 B NL 7411118 A SE 7410681 A

L2: Entry 5 of 5

File: DWPI

Mar 6, 1975

DERWENT-ACC-NO: 1975-17772W

DERWENT-WEEK: 197511

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TITLE: Lacquer soluble isocyanate-contg. addn. prods. - of malonic acid dialkyl esters

[illegible][illegible]

7048
C. 6000

and aliphatic biuret polyisocyanates

PRIORITY-DATA: 1973DE-2342603 (August 23, 1973)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 2342603 A	March 6, 1975		000	
BE 819042 A	February 21, 1975		000	
DE 2342603 B	October 16, 1980		000	
DK 7404494 A	April 28, 1975		000	
FR 2241573 A	April 25, 1975		000	
GB 1442024 A	July 7, 1976		000	
IT 1018973 B	October 20, 1977		000	
NL 7411118 A	February 25, 1975		000	
SE 7410681 A	March 24, 1975		000	

INT-CL (IPC): C07C 119/04; C07C 127/24; C08F 0/00; C08G 18/72; C09D 3/72

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Drawn Desc	Image								

KWWC

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Term	Documents
POLYISOCYANATE.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	52877
POLYISOCYANATES.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	22356
MALONIC.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	27243
MALONICS	0
ESTER.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	475265
ESTERS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	300462
((MALONIC NEAR3 POLYISOCYANATE) ADJ ESTER).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	5
(POLYISOCYANATE NEAR3 MALONIC ESTER).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	5

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Search Results - Record(s) 1 through 4 of 4 returned.

☐ 1. Document ID: US 6040009 A

L5: Entry 1 of 4

File: USPT

Mar 21, 2000

US-PAT-NO: 6040009

DOCUMENT-IDENTIFIER: US 6040009 A

TITLE: Low solvent content type-resin composition, coating composition containing such resin composition and process for coating such coating composition

DATE-ISSUED: March 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Marutani, Yoshiaki	Hiroshima			JP
Tomita, Takashi	Hiroshima			JP
Nakahama, Tadimitsu	Hiroshima			JP
Uemura, Hiroyuki	Hiroshima			JP
Koga, Kazuhi	Hiroshima			JP
Ohsawa, Mika	Hiroshima			JP

US-CL-CURRENT: 427/241, 427/240, 427/385.5, 427/388.2, 427/388.3, 523/400, 524/539, 524/542, 524/597, 525/437, 525/440, 525/443, 525/450, 525/519, 528/297, 528/354, 528/80, 528/81

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC
Draw	Desc	Image									

☐ 2. Document ID: US 5393823 A

L5: Entry 2 of 4

File: USPT

Feb 28, 1995

US-PAT-NO: 5393823

DOCUMENT-IDENTIFIER: US 5393823 A

TITLE: Coating resin composition

DATE-ISSUED: February 28, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Konno, Hidetoshi	Izumi-ohsu			JP
Ooka, Masataka	Nara			JP
Takeda, Hirofumi	Yao			JP
Sakamoto, Hiroshi	Ikaruga			JP

US-CL-CURRENT: 524/507, 524/512, 524/535, 525/123, 525/160, 525/326.5, 525/355, 525/366, 525/370, 525/483, 526/229, 528/403

of a 40% strength aqueous sodium lauryl-sulfate solution in 5,000 parts of water. After completion of the polymerization, the pH is brought to 7 with ammonia. 47 parts of isobutylene-bis-semicarbazide and 0.28 part of chromium sulfate are then stirred in. The dispersion may be used for coating paper. Even after several weeks' storage at room temperature, no free hydrazine is detectable. A film prepared from the dispersion picks up 540% of solvent after 1 day's storage in dimethyl-

formamide.

EXAMPLE 15

1,000 parts of vinyl acetate, 400 parts of polyvinyl alcohol (88% hydrolyzed; viscosity of the 40% strength solution: 25 mPa.s), 200 parts of nonylphenol oxyethyl-

ated with 20 moles of ethylene oxide, 20 parts of sodium acetate and 6,500 parts of water are introduced into an autoclave equipped with a stirrer and thermostatic control. The charge is then heated to 55° C. and ethylene is

maintained during the subsequent polymerization. The polymerization is started by means of a solution of 40 parts of potassium persulfate in 2,000 parts of water and a solution of 40 parts of sodium bisulfite in 2,000 parts of water. These two solutions are run in separately over 4

hours. In addition, a mixture of 7,000 parts of vinyl acetate and 500 parts of acrylonitrile is introduced into the autoclave continuously over 3 hours. On completion of the addition, the polymerization is continued for 1 hour at 55° C. The reactor is then cooled, the pressure is let down and the dispersion is run off.

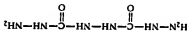
Analysis shows a content of polymerized ethylene units of 15%. 250 parts of bis-semicarbazide of the formula



and 2.75 parts of chromium sulfate are stirred into the dispersion. The resulting dispersion may be used for the coating of leather. No free hydrazine is detectable even after several weeks' storage. A film prepared from the dispersion picks up 620% of solvent after 1 day's storage in dimethylformamide.

We claim:

1. An aqueous dispersion of a copolymer of olefinically unsaturated monomers containing keto and/or



Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
Draw Desc	Image										

☐ 3. Document ID: US 4972027 A

L5: Entry 3 of 4

File: USPT

Nov 20, 1990

US-PAT-NO: 4972027

DOCUMENT-IDENTIFIER: US 4972027 A

TITLE: Composition curable at low temperature

DATE-ISSUED: November 20, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Isozaki; Osamu	Yokohama			JP
Nakai; Noboru	Hiratsuka			JP
Sugiura; Shinji	Fujisawa			JP
Ito; Satoru	Kanagawa			JP
Takami; Seiji	Hiratsuka			JP

US-CL-CURRENT: 525/365; 525/286, 525/288, 525/364, 525/72, 525/74

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 4. Document ID: US 4923945 A

L5: Entry 4 of 4

File: USPT

May 8, 1990

US-PAT-NO: 4923945

DOCUMENT-IDENTIFIER: US 4923945 A

TITLE: Resin composition curable at low temperature

DATE-ISSUED: May 8, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Isozaki; Osamu	Yokohama			JP
Nakai; Noboru	Hiratsuka			JP
Ito; Satoru	Kanagawa			JP
Takami; Seiji	Hiratsuka			JP

US-CL-CURRENT: 528/16; 524/199, 524/284, 524/285, 524/361, 524/366, 524/367, 524/376, 525/476, 525/477, 526/279, 528/17, 528/32

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									



US0005916960A

[11] Patent Number: 5,916,960
[45] Date of Patent: *Jun. 29, 1999

United States Patent [19]
Lum et al.

[54] WATER-BASED, STORAGE STABLE, SELF-CURING COATING COMPOSITION

[75] Inventors: Dorey Lum, Saffern, N.Y.; Prashant Patel, Aliso Viejo, Calif.

[73] Assignee: The Sherwin-Williams Company, Cleveland, Ohio

[*] Notice: This patent is subject to a terminal disclaimer.

[21] Appl. No.: 08/955,418
[22] Filed: Oct. 22, 1997
Related U.S. Application Data

[63] Continuation of application No. 08/660,717, Jun. 10, 1996, abandoned, which is a continuation of application No. 08/171,577, Dec. 21, 1993, abandoned.

[51] Int. Cl.⁶ C08J 3/03; C08L 75/00
[52] U.S. Cl. 524/501; 524/548; 524/517
[58] Field of Search 524/501, 507, 524/548, 517

U.S. PATENT DOCUMENTS

3,862,074 1/1975 Hickey
4,066,591 1/1978 Saffers et al.
4,108,811 8/1978 Eckhoff
260/29.6 260/29.2 260/22

A coating composition has storage stability, and provides a highly durable coating on various substrates, such as wood. It can be a clear coating or a staining composition. The critical components of the composition are a self-curing vinyl polymer, an ammonia-neutralized polyurethane and a water-soluble catalyst to promote rapid curing under ambient conditions.

ABSTRACT

[57] McDonald; Heidi A. Hochlefeld
Attorney, Agent, or Firm—Vivien Y. Tsang; Robert E. Assistant Examiner—U. K. Rajguru
Primary Examiner—James J. Seidbeck

FOREIGN PATENT DOCUMENTS

4,396,738 8/1983 Powell et al.
4,442,248 4/1984 Kanda et al.
4,888,383 12/1989 Huybrechts
4,906,684 3/1990 Say
4,927,876 5/1990 Coogan et al.
4,954,559 9/1990 Harlog et al.
5,006,413 4/1991 Harlog et al.
5,137,961 8/1992 Goos et al.
5,141,983 8/1992 Hasegawa et al.
5,173,526 12/1992 Vijayendran et al.
5,439,952 8/1995 Lum et al.
524/228 8/1983 Powell et al.
524/414 4/1984 Kanda et al.
524/832 12/1989 Huybrechts
524/548 3/1990 Say
524/557 5/1990 Coogan et al.
524/507 9/1990 Harlog et al.
524/463 4/1991 Harlog et al.
524/457 8/1992 Goos et al.
524/457 8/1992 Hasegawa et al.
524/457 12/1992 Vijayendran et al.
524/410 8/1995 Lum et al.

26 Claims, No Drawings

Set Name Query

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Hit Count Set Name

result set

DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L14</u>	polyisocyanate and tetra-n-butyl titanate and polyester and one component and composit\$5	10	<u>L14</u>
<u>L13</u>	polyisocyanate and tetra-n-butyl titanate and polyester and one component composit\$5	0	<u>L13</u>
<u>L12</u>	polyisocyanate and tetra-n-butyl titanate and polyester and composit\$5	53	<u>L12</u>
<u>L11</u>	polyisocyanate and tetra-n-butyl titanate and polyester and stoving composit\$5	0	<u>L11</u>
<u>L10</u>	polyisocyanate and tetra-n-butyl titanate and polyester	56	<u>L10</u>
<u>L9</u>	polyisocyanate and tetra-n-butyl titanate polyester	0	<u>L9</u>
<u>L8</u>	polyisocyanate and tetra-n-butyl titanate	61	<u>L8</u>
<u>L7</u>	polyisocyanate near15 malonic ester and tetra-n-butyl titanate	0	<u>L7</u>
<u>L6</u>	polyisocyanate near15 malonic ester	18	<u>L6</u>
<u>L5</u>	polyisocyanate near1 5 malonic ester	0	<u>L5</u>
<u>L4</u>	polyisocyanate near15 malonic ester	18	<u>L4</u>
<u>L3</u>	polyisocyanate near5 malonic ester	10	<u>L3</u>
<u>L2</u>	polyisocyanate near3 malonic ester	5	<u>L2</u>
<u>L1</u>	polyisocyanate near malonic ester	3	<u>L1</u>

END OF SEARCH HISTORY

Set Name Query

side by side

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result set

DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L5</u>	tetra-n-butyl titanate and polyisocyanate and isobutanol	4	<u>L5</u>
<u>L4</u>	tetra-n-butyl titanate and polyisocyanate isobutanol	0	<u>L4</u>
<u>L3</u>	tetra-n-butyl orthotitanate and polyisocyanate	0	<u>L3</u>
<u>L2</u>	tetra-n-butyl titanate and polyisocyanate	61	<u>L2</u>
<u>L1</u>	tetra-n-butyl titanate	445	<u>L1</u>

END OF SEARCH HISTORY

[illegible][illegible]

Set Name Query

side by side

Hit Count Set Name

result set

DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L7</u>	tetra near n near butyl titanate and polyisocyanate [clm]	17	<u>L7</u>
<u>L6</u>	tetra near n near butyl titanate and polyisocyanate [ab]	4	<u>L6</u>
<u>L5</u>	tetra near n near butyl titanate and polyisocyanate [ti]	0	<u>L5</u>
<u>L4</u>	tetra near n near butyl titanate and polyisocyanate	63	<u>L4</u>
<u>L3</u>	tetra near n near butyl titanate	537	<u>L3</u>
<u>L2</u>	tetra near n near butyl titanate and 6060573 [pn]	0	<u>L2</u>
<u>L1</u>	tetra-n-butyl titanate and 6060573 [pn]	0	<u>L1</u>

END OF SEARCH HISTORY

10/079661

20 Sep 2002
5 Sep 2002
①

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claim 9 provides for the use of polyethylene as an antidrip agent in molding

compositions, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually

practiced.

Claim 9 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without

setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F.

Supp. 131, 149 USPQ 475 (D.C. 1966).

Claim 4 is indefinite since it is not known which type of av. Molecular weight is

envisioned (in lines 2-3).

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 4 of 4 returned.**☐ 1. Document ID: US H000752 H

L4: Entry 1 of 4

File: USPT

Mar 6, 1990

US-PAT-NO: H000752

DOCUMENT-IDENTIFIER: US H000752 H

TITLE: Magnetic recording medium

DATE-ISSUED: March 6, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Suzuki; Atsushi	Utsunomiya			JP
Koyama; Shigeru	Ichikai			JP

US-CL-CURRENT: 428/694BU; 428/694BS

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
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☐ 2. Document ID: US 4837245 A

L4: Entry 2 of 4

File: USPT

Jun 6, 1989

US-PAT-NO: 4837245

DOCUMENT-IDENTIFIER: US 4837245 A

TITLE: Process for the preparation of non-cellular or cellular polyurethane elastomers in the presence of a polyester polyol containing therein titanium and/or tin compounds as catalysts

DATE-ISSUED: June 6, 1989

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Streu; Joachim	Diepholz			DE
Straehle; Wolfgang	Heidelberg			DE
Ramlow; Gerhard	Weinheim			DE

US-CL-CURRENT: 521/117, 252/182.14, 252/182.3, 502/102, 502/151, 521/123, 521/127, 521/172, 521/173, 528/56, 528/58, 528/66

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
Draw	Desc	Image								

22

Once the precipitate has been stabilized, residual water can be removed from the precipitate by centrifugation. The cellulose ester/functional additive blend is then dried by conventional techniques.

The invention further relates to a process for preparing a cellulose ester/functional additive blend, comprising:

(a) admixing the functional additive with the cellulose ester and a first acid;

(b) depositing the admixture of step (a) in a pellet;

(c) extruding the admixture from the pellet;

(d) immediately after step (c) or simultaneous with step (c), contacting the extruded admixture with a precipitating agent to precipitate the cellulose ester/functional additive to thereby produce an extrusion of the cellulose ester/functional additive blend; and

(e) cutting the precipitated extrusion into pellets.

As described above, the admixture comprising the cellulose ester, the functional additive and the first acid are added to a bath containing a precipitating agent in order to coprecipitate the cellulose ester/functional additive blend. In another embodiment of the invention, the admixture of step (a) can be added to a pellet prior to contacting the admixture with the precipitating agent. Pellets useful in the present invention are known in the art. In another embodiment, prior to adding the admixture of step (a) to the pellet, the admixture and pellet are heated. In one embodiment, the admixture is heated from 5 to 60°C, preferably, 5 to 15°C, and the pellet is heated from 5 to 60°C, preferably 5 to 15°C. In one

☐ 3. Document ID: US 4808477 A

L4: Entry 3 of 4

File: USPT

Feb 28, 1989

US-PAT-NO: 4808477

DOCUMENT-IDENTIFIER: US 4808477 A

TITLE: Urethane modified nylon magnet wire enamel

DATE-ISSUED: February 28, 1989

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Harber; Joseph J.	Fort Wayne	IN		

US-CL-CURRENT: 428/389; 427/117, 427/120, 427/388.1, 428/383, 428/458, 428/470

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
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☐ 4. Document ID: US 4725458 A

L4: Entry 4 of 4

File: USPT

Feb 16, 1988

US-PAT-NO: 4725458

DOCUMENT-IDENTIFIER: US 4725458 A

TITLE: Urethane modified nylon magnet wire enamel

DATE-ISSUED: February 16, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Harber; Joseph J.	Fort Wayne	IN		

US-CL-CURRENT: 427/388.1; 427/120, 428/379, 428/383, 525/420, 525/424, 525/425

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
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embodiment, prior to step (c) the temperature of the pelletier is adjusted to -5 to 25°C.

5 In one embodiment, the pelletier containing the admixture of step (a) is contacted with the precipitating agent. In another embodiment, the cutter end of the pelletier is submerged into a bath comprising the precipitating agent. In one embodiment, the precipitating agent is water. In another embodiment, the precipitating agent comprises a second acid. Once the pelletier extrudes the admixture of step (a) into the bath containing the precipitating agent, a pellet 10 comprising the cellulose ester/ functional additive is produced. In one embodiment, the precipitating agent is heated from 0 to 23°C prior to the contacting step.

15 Once the pellet of the cellulose ester/functional additive blend is produced, the pellets can be washed with water, treated with a stabilizer, and dried to remove residual water as described above for the powder process.

PREPARATION OF A CONTROLLED RELEASE MATRIX SYSTEM

20 In accordance with the purposes of this invention, as embodied and broadly described herein, the invention relates to a method for controlled release of an agricultural additive, preferably, comprising dispensing the controlled release matrix system, comprising:

25 (a) at least one biodegradable cellulose ester; and

(b) at least one agricultural additive,

wherein components (a) and (b) form a controlled release matrix system,

<u>Set Name</u> side by side	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u> result set
<i>DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ</i>			
<u>L5</u>	tetra-n-butyl titanate and polyisocyanate [clm]	17	<u>L5</u>
<u>L4</u>	tetra-n-butyl titanate and polyisocyanate [ab]	4	<u>L4</u>
<u>L3</u>	tetra-n-butyl titanate and polyisocyanate [ti]	0	<u>L3</u>
<u>L2</u>	tetra-n-butyl titanate and polyisocyanate	61	<u>L2</u>
<u>L1</u>	tetra-n-butyl titanate	445	<u>L1</u>

END OF SEARCH HISTORY

5,580,911; and 5,559,171 are incorporated herein by reference for a detailed discussion on biodegradability. Biodegradability can also occur by use of fungi.

Biodegradation of cellulose esters in a composting environment has been demonstrated. The factors that effect the rate of degradation are the type of substituent (i.e. acetate, propionate or butyrate) and the degree of substitution of the cellulose. Typically, lower DS material degrades faster than high DS material and smaller substituents (acetate) degrade faster than larger ones.

10 A number of cellulose esters were synthesized from ^{14}C -labelled acetate and subjected to a composting environment. The release of $^{14}\text{CO}_2$ produced by degradation of the material was monitored and was used as an indicator of the degradation of the ester linkages. As illustrated by the figure below, the $^{14}\text{CO}_2$ is rapid with the majority of the material degrading within a week. Cellulose acetates with higher degrees of substitution require much longer periods of time to degrade. For example, cellulose acetate with DS 2.5 remains only partially degraded after 2 weeks time.

NAME	CITY	STATE	COUNTRY	RULE-47
Gindin, Lyubov K.	Pittsburgh	PA	US	
Henderson, Karen M.	Coraopolis	PA	US	
Lee, Sze-Ming	Houston	TX	US	
Long, Brian	Clarington	OH	US	

US-CL-CURRENT: 524/589; 524/839

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KIMC
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☐ 5. Document ID: US 6444746 B1

L7: Entry 5 of 22

File: USPT

Sep 3, 2002

US-PAT-NO: 6444746
DOCUMENT-IDENTIFIER: US 6444746 B1TITLE: Aqueous polyurethane dispersions containing pendant amide groups and their use in one-component thermoset compositions

DATE-ISSUED: September 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gindin, Lyubov K.	Pittsburgh	PA		
Henderson, Karen M.	Coraopolis	PA		
Lee, Sze-Ming	Houston	TX		
Long, Brian	Clarington	OH		

US-CL-CURRENT: 524/591; 428/423.1, 524/839, 524/840

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KIMC
Draw Desc	Image									

☐ 6. Document ID: US 6362300 B1

L7: Entry 6 of 22

File: USPT

Mar 26, 2002

US-PAT-NO: 6362300
DOCUMENT-IDENTIFIER: US 6362300 B1TITLE: Moisture-curable polyurethane compositions

DATE-ISSUED: March 26, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Araki, Kiminori	Kanagawa			JP
Matsuda, Hideyuki	Kanagawa			JP
Nishi, Eiji	Kanagawa			JP
Samata, Takahiro	Kanagawa			JP

US-CL-CURRENT: 528/28; 524/115, 524/126, 524/425, 528/38, 528/58, 544/106

"Other polymer" or "another polymer" is defined as a polymer which is not included as one of the other functional additives listed herein. The polymers of this

25 After melt and/or solid phase polycondensation the polyesters have an inherent viscosity (LV) of about 0.65 to about 1.2 dL/g, preferably 0.75 dL/g measured at 25°C in a 60/40 ratio by weight of phenol/tetrachloroethane.

20 The term "functional additive" as used herein refers to cellulosic plastic modifiers. These modifiers can include, but are not limited to, plasticizers, other polymers, UV light stabilizers, dyes and pigments, acid stabilizers, agricultural chemicals, and bioactive compounds.

15 In this specification and in the claims which follow, reference will be made to a number of terms which shall be defined to have the following meanings:

As used in the specification and in the claims, "a" can mean one or more, depending upon the context in which it is used.

10 Before the present compositions of matter, products and methods are disclosed and described, it is to be understood that this invention is not limited to specific synthetic methods or to particular formulations, as such may, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting.

5 DETAILED DESCRIPTION OF THE INVENTION

general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention, as claimed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 7. Document ID: US 6103849 A

L7: Entry 7 of 22

File: USPT

Aug 15, 2000

US-PAT-NO: 6103849

DOCUMENT-IDENTIFIER: US 6103849 A

TITLE: Storage stable, heat curable polyurethane compositions

DATE-ISSUED: August 15, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Squiller; Edward P.	Pittsburgh	PA		
Rosthauser; James W.	Glen Dale	WV		
Markusch; Peter H.	McMurray	PA		
Potter; Terry A.	Beaver	PA		

US-CL-CURRENT: 528/45; 528/59

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KIMC

☐ 8. Document ID: US 6063861 A

L7: Entry 8 of 22

File: USPT

May 16, 2000

US-PAT-NO: 6063861

DOCUMENT-IDENTIFIER: US 6063861 A

TITLE: Self crosslinkable polyurethane-polyacrylate hybrid dispersions

DATE-ISSUED: May 16, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Irl; Christoph	Krefeld			DE
Blum; Harald	Leverkusen			DE
Kremer; Wolfgang	Kerken			DE
Roschu; Rolf	Willich			DE

US-CL-CURRENT: 524/591; 428/423.1, 428/425.1, 524/507, 524/539, 524/839, 524/840, 525/123, 525/455

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

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☐ 9. Document ID: US 6046270 A

invention are preferably polyesters. The polyesters of this invention can be any polyester known in the art, but is preferably an aliphatic polyester, or an aromatic-aliphatic copolyester. The polyesters of this invention may be miscible, partially miscible, or immiscible in certain combinations or compositions with the cellulose esters described herein. The polyesters of this invention may have an inherent viscosity greater than 0.40 dL/g and a preferred inherent viscosity of between 0.40 and 1.60 dL/g as measured at a concentration of 0.5 weight% in tetrahydrofuran / phenol [40:60]. The polyesters may be prepared according to polyester forming conditions known in the art. The reaction should occur at a temperature to effect esterification and polycondensation. For example, a mixture of one or more aromatic or aliphatic dicarboxylic acids, preferably aliphatic dicarboxylic acids or ester forming derivatives thereof, and one or more diols may be heated in the presence of esterification and/or transesterification catalysts at temperatures in the range of about 150 C to 300 C, and more preferably in the range of about 200 C to 270 C. Normally, the dicarboxylic acid is esterified with the diol(s) at temperatures of 200 C to 270 C and elevated pressure under nitrogen. Polycondensation is then effected by increasing the temperature and lowering the pressure while excess diol(s) is removed from the mixture. The aliphatic polyesters of this invention may be prepared from diacids (or diesters) such as glutaric, adipic, succinic, and sebacic acids (or esters). Aliphatic-aromatic copolyesters may be prepared from the diacids (or diesters) above and aromatic diesters such as dimethyl terephthalate, dimethyl isophthalate and dimethyl 2,6-naphthalene dicarboxylate. These diacids and diesters may be polymerized with several diols such as ethylene glycol, butanediol, diethylene glycol, hexanediol and polyethylene glycol. Examples of polyesters suitable for this invention are: poly(ethylene glutarate), poly(tetramethylene glutarate), poly(adipate), poly(hexamethylene glutarate), poly(ethylene glutarate), poly(dichloroethylene glutarate), poly(ethylene glutarate-co-terephthalate) [85/15], poly(ethylene glutarate-co-terephthalate) [70/30], poly(tetramethylene glutarate-co-terephthalate) [70/30], poly(ethylene glutarate-co-terephthalate) [85/15].

L7: Entry 9 of 22

File: USPT

Apr 4, 2000

US-PAT-NO: 6046270
DOCUMENT-IDENTIFIER: US 6046270 A

TITLE: Silane-modified polyurethane resins, a process for their preparation and their use as moisture-curable resins

DATE-ISSUED: April 4, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Roesler; Richard R.	Wexford	PA		
Schmalstieg; Lutz	Cologne			DE

US-CL-CURRENT: 524/590; 524/588, 524/589, 528/28, 528/44, 528/60, 528/85

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
Drawn Desc	Image									

☐ 10. Document ID: US 5710209 A

L7: Entry 10 of 22

File: USPT

Jan 20, 1998

US-PAT-NO: 5710209
DOCUMENT-IDENTIFIER: US 5710209 A

TITLE: Aqueous binders for coating compositions based on polyester polyurethanes

DATE-ISSUED: January 20, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Blum; Harald	Wachtendonk			DE
Pedain; Josef	Koln			DE

US-CL-CURRENT: 524/591; 524/538, 524/839, 524/840

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
Drawn Desc	Image									

☐ 11. Document ID: US 5656712 A

L7: Entry 11 of 22

File: USPT

Aug 12, 1997

US-PAT-NO: 5656712
DOCUMENT-IDENTIFIER: US 5656712 A

TITLE: Polyurethane compositions and method

DATE-ISSUED: August 12, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mirossay; Thomas C.	Arlington	TX	76018	

- terephthalate) [85/15], poly(tetramethylene adipate-co-terephthalate) [85/15], poly(tetramethylene adipate-co-terephthalate) [70/30], poly(tetramethylene glutarate-co-terephthalate) [70/30], poly(tetramethylene-co-ethylene glutarate-co-terephthalate) [50/50:85/15], poly(tetramethylene-co-ethylene glutarate-co-terephthalate) [50/50:70/30], poly(hexamethylene glutarate-co-terephthalate) [75/25], poly(hexamethylene glutarate-co-terephthalate) [70/30], poly(ethylene-co-terephthalate) [91/9], poly(ethylene-co-polyethylene glutarate-co-terephthalate) [91/9], poly(ethylene-co-polyethylene glutarate-co-terephthalate) [91/9;70/30]. The polyesters of this invention may be those prepared biologically, such as polyhydroxybutyrate or copolymers of polyhydroxybutyrate and polyhydroxyvalerate.

- The polyesters may be prepared according to polyester forming conditions well known in the art. The reaction should occur at a temperature to effect esterification and polycondensation. For example, a mixture of one or more dicarboxylic acids, preferably aromatic dicarboxylic acids, or ester forming derivatives thereof, and one or more diols may be heated in the presence of esterification and/or transesterification catalysts at temperatures in the range of about 150° to about 300°C, preferably, about 200°C to about 300°C, and even more preferably, about 260°C to about 300°C, and pressures of atmospheric to about 0.2 mm Hg. Normally, the dicarboxylic acid is esterified with the diol(s) at elevated pressure and at a temperature at about 240°C to about 270°C. Polycondensation then is effected by increasing the temperature and lowering the pressure while excess diol is removed from the mixture.

- The term "degree of substitution" as used herein refers to the number of substituents per anhydroglucose unit where the maximum DS/AGU is three. The term "degree of substitution" will also be referred to as "DS" or DS/AGU" throughout the application.

US-CL-CURRENT: 528/56; 528/61, 528/905

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	PMC
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☐ 12. Document ID: US 5610232 A

L7: Entry 12 of 22

File: USPT

Mar 11, 1997

US-PAT-NO: 5610232

DOCUMENT-IDENTIFIER: US 5610232 A

TITLE: Aqueous non-gelling, anionic polyurethane dispersions and process for their manufacture

DATE-ISSUED: March 11, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Duan; Youlu	Minneapolis	MN		
Stammler; Sonja	St. Croix	MN		
Rhein; Scott	Forest Lake	MN		
Lindquist; Lowell	St. Paul	MN		

US-CL-CURRENT: 524/840; 156/331.1, 156/331.4, 156/331.7, 428/423.1, 428/423.4, 428/423.7, 428/424.2, 428/424.6, 428/424.8, 428/425.1, 428/425.8, 524/500, 524/507, 524/591, 525/123, 525/127, 525/440, 525/454, 525/455, 525/457, 525/528, 528/71, 528/905

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	PMC
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☐ 13. Document ID: US 5608000 A

L7: Entry 13 of 22

File: USPT

Mar 4, 1997

US-PAT-NO: 5608000

DOCUMENT-IDENTIFIER: US 5608000 A

TITLE: Aqueous polyurethane dispersion adhesive compositions with improved heat resistance

DATE-ISSUED: March 4, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Duan; Youlu	Minneapolis	MN		
Stammler; Sonja	Marine On the St. Croix	MN		

US-CL-CURRENT: 524/591; 428/423.1, 428/423.4, 428/423.7, 428/424.2, 428/424.6, 428/424.8, 428/425.1, 428/425.8, 524/500, 524/507, 524/840, 525/123, 525/127, 525/440, 525/453, 525/454, 525/455, 525/457, 525/528, 528/71, 528/905

PREPARATION OF A CELLULOSE ESTER/FUNCTIONAL ADDITIVE **BLEND BY COPRECIPITATION**

5 In accordance with the purpose(s) of this invention, as embodied and broadly described herein, the invention, in one aspect, relates to a process for blending a cellulose ester with a functional additive, comprising:

10 (a) admixing the functional additive with the cellulose ester and a first acid, and

(b) contacting the admixture with an aqueous precipitating agent, whereby a blend comprising the cellulose ester and the functional additive coprecipitates.

15 The invention further relates to a process for blending a cellulose ester with a functional additive, comprising:

20 (a) admixing

(i) a functional additive comprising a plasticizer, another polymer, a UV light stabilizer, a dye, a pigment, an acid stabilizer, a flame retardant, an agricultural chemical, bioactive compound or a mixture thereof,

25 (ii) a cellulose ester comprising cellulose acetate, cellulose acetate phthalate, cellulose acetate butyrate, cellulose butyrate, cellulose propionate, cellulose acetate propionate, carbonylmethylcellulose acetate propionate, acetate, carbonylmethylcellulose acetate propionate,

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KMC

☐ 14. Document ID: US 5548057 A

L7: Entry 14 of 22

File: USPT

Aug 20, 1996

US-PAT-NO: 5548057

DOCUMENT-IDENTIFIER: US 5548057 A

TITLE: One-component-type composition for polyurethane elastomer and method for processing the same by molding

DATE-ISSUED: August 20, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hirayama; Shinji	Hadano			JP
Konishi; Shin	Fujisawa			JP
Hidai; Takao	Anjo			JP
Hama; Shinjiro	Fujisawa			JP
Hashimoto; Sadako	Hadano			JP
Morikawa; Yukihiro	Yokohama			JP

US-CL-CURRENT: 528/67

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KMC

☐ 15. Document ID: US 5142014 A

L7: Entry 15 of 22

File: USPT

Aug 25, 1992

US-PAT-NO: 5142014

DOCUMENT-IDENTIFIER: US 5142014 A

TITLE: Ambient temperature curable one-component polyurethane or polyurea compositions

DATE-ISSUED: August 25, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Markusch; Peter H.	McMurray	PA		
Squiller; Edward P.	Wheeling	WV		

US-CL-CURRENT: 528/45, 528/44, 528/60, 528/62, 528/64, 528/71

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 16. Document ID: US 5138011 A

L7: Entry 16 of 22

File: USPT

Aug 11, 1992

carboxymethylcellulose acetate butyrate, cellulose acetate butyrate succinate, or a mixture thereof, and

(iii) a first acid comprising acetic acid, propionic acid, butyric acid or a mixture thereof, and

(b) contacting the admixture with an aqueous precipitating agent comprising water, acetic acid, propionic acid, butyric acid, or a mixture thereof, whereby a blend comprising the cellulose ester and the functional additive coprecipitates.

The invention relates to a method of producing a blend of a cellulose ester and a functional additive by coprecipitation from carboxylic acid(s) dopes, into water or aqueous carboxylic acid(s). As used herein, the term "coprecipitation" refers to the act of causing two or more chemicals or chemical compounds in an admixture solution or suspension in the presence of a solvent or solvent mixture to precipitate by the addition of a precipitant, such that the greater fraction of the desired chemicals or chemical compounds are incorporated into the resulting precipitate phase.

In one embodiment, a functional additive can be incorporated into the precipitated cellulose ester blend. In a particular embodiment, the functional additive can be a plasticizer, another polymer, a UV light stabilizer such as organic phosphites known in the art, a dye or a pigment, an acid stabilizer, a flame retardant, an agricultural chemical (*i.e.* pesticide, herbicide, fertilizer, trace mineral), a bioactive compound (*i.e.* medicaments), or a mixture thereof. In a more preferred embodiment, the functional additive is a plasticizer, a UV stabilizer, a dye, or a mixture thereof.

US-PAT-NO: 5138011
DOCUMENT-IDENTIFIER: US 5138011 A

TITLE: One-component polyurethane or polyurea compositions

DATE-ISSUED: August 11, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Markusch; Peter H.	McMurray	PA		
Squiller; Edward P.	Wheeling	WV		

US-CL-CURRENT: 528/45; 528/44, 528/52, 528/64

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 17. Document ID: US 5124447 A

L7: Entry 17 of 22

File: USPT

Jun 23, 1992

US-PAT-NO: 5124447
DOCUMENT-IDENTIFIER: US 5124447 A

TITLE: Ambient temperature curable one-component polyurethane or polyurea compositions

DATE-ISSUED: June 23, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Squiller; Edward P.	Wheeling	WV		
Markusch; Peter H.	McMurray	PA		

US-CL-CURRENT: 528/45; 523/414, 523/415, 523/417, 528/60, 528/68, 528/73

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 18. Document ID: US 4425468 A

L7: Entry 18 of 22

File: USPT

Jan 10, 1984

US-PAT-NO: 4425468
DOCUMENT-IDENTIFIER: US 4425468 A

TITLE: Polyurea-polyurethane acrylate polymer dispersions

DATE-ISSUED: January 10, 1984

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Makhlouf; Joseph M.	Mars	PA		
McCollum; Gregory J.	Glenshaw	PA		
Kerr; Paul R.	Allison Park	PA		

Examples of plasticizers suitable for the present invention include, but are not limited to, dioctyl adipate, triethylene glycol-2-ethylhexanoate, polyethylene glytarate, dioctyl phthalate, diethyl phthalate, butyl benzyl phthalate, triethyl citrate, tripropionin, polypropylene glycol dibenzoate, polyethylene succinate, sucrose acetate isobutyrate, triphenyl phosphate, polyalkyl glycoside, triethyl phosphate, diethyl phthalate, 2,2,4-trimethyl-1,3-pentane-diol diisobutyrate, a copolymer of phthalic acid, 1,3-butanediol, and 1,4-butanediol end capped by allylphatic epoxide, or a mixture thereof.

10 Examples of UV stabilizers and antioxidants suitable for the present invention include, but are not limited to, epoxides of a natural oil, and mineral oil, organic phosphites, or a mixture thereof.

15 Examples of organic dyes suitable for the present invention include, but are not limited to, C.I. Solvent Violet 13, C.I. Pigment Blue 15, C.I. Pigment Blue 28, C.I. Dispersion Violet 8, and C.I. Pigment Red 122. A preferred dye is C.I. Solvent Violet 13.

20 A wide variety of agricultural additives can be used in the present invention. In one embodiment, the agricultural additive comprises an insecticide, a herbicide, a pesticide, a fertilizer, or a trace mineral, or a mixture thereof. In another embodiment, the agricultural additive is an insecticide comprising an organochlorine compound, an organophosphate compound, an aryl compound, a heterocyclic compound, an organosulfur compound, a carbamate compound, a formamidine compound, a dinitrophenol compound, an organotin compound, a pyrethroid compound, an acylurea compound, a botanical compound, an antibiotic compound, a fungicidal compound, a repellent compound, an inorganic compound, or a mixture thereof.

US-CL-CURRENT: 524/710; 524/840, 525/440, 525/455, 525/459, 525/920, 526/75, 528/75

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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☐ 19. Document ID: US 4373081 A

L7: Entry 19 of 22

File: USPT

Feb 8, 1983

US-PAT-NO: 4373081

DOCUMENT-IDENTIFIER: US 4373081 A

TITLE: Coating compositions and process for the production of polyurethane coatings

DATE-ISSUED: February 8, 1983

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nachtkamp; Klaus	Cologne			DE
Bock; Manfred	Leverkusen			DE
Mennicken; Gerhard	Leverkusen			DE
Pedain; Josef	Cologne			DE

US-CL-CURRENT: 528/45; 428/423.1, 428/425.8

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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☐ 20. Document ID: US 4173691 A

L7: Entry 20 of 22

File: USPT

Nov 6, 1979

US-PAT-NO: 4173691

DOCUMENT-IDENTIFIER: US 4173691 A

TITLE: Catalyst composition for flexible polyurethane foams

DATE-ISSUED: November 6, 1979

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Treadwell; Kenneth	Rahway	NJ		

US-CL-CURRENT: 521/124; 502/170, 521/125

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 21. Document ID: US 3953169 A

L7: Entry 21 of 22

File: USPT

Apr 27, 1976

In another embodiment, the organochlorine compound comprises a diphenyl aliphatic compound, hexachlorocyclohexane, a cycloalkene, or a polychloroterpene. In one embodiment, the diphenyl aliphatic compound comprises 1,1-dichloro-2,2-bis(p-chlorophenyl)ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane, dicyclohexyl, chlorobenzilate, or methoxychlor. In another embodiment, the cycloalkene comprises chlorodane, aldrin, dieldrin, heptachlor, endrin, mirex, endosulfan, or chlordane. In another embodiment, the polychloroterpene comprises toxaphene or strobane. In another embodiment, the organophosphate comprises an aliphatic phosphate compound, an aryl phosphate compound, or a heterocyclic phosphate compound. Examples of aliphatic compounds include, but are not limited to, malathion, trichlorfon, monocrotophos, dimethoate, oxydemetonmethyl, dicrotophos, disulfoton, dichlorvos, mevinphos, methamidophos, or acephate. Examples of phenyl compounds include, but are not limited to, ethyl parathion, methyl parathion, profenofos, sulprofos, isofenphos, fenitrothion, fenitron, or famphur. Examples of heterocyclic compounds include, but are not limited to, diazinon, azinphos-methyl, chlorpyrifos, methidathion, phosmet, isazophos, chlorpyrifos-methyl, or azinphos-ethyl. In another embodiment, the organosulfur compound comprises tetradifon, propargite or oxex. In another embodiment, the carbamate comprises carbarly, methomyl, carbosulfan, aldicarb, oxamyl, thiodicarb, methiocarb, propoxur, bendiocarb, carboisulfan, aldoxycarb, trimethacarb, promecarb, or fenoxycarb. In another embodiment, the formamidine comprises chloridmefos, formetanate, or amitraz. In another embodiment, the dinitrophenol compound comprises binapacryl or dinocap. In another embodiment, the organotin compound comprises cyhexatin or fenbutatin-oxide. In another embodiment, the pyrethroid comprises allethrin, tetraethrin, bioresmethrin, bioallethrin, phenothrin, fenvalerate, permethrin, lambda cyhalothrin, cypermethrin, cyfluthrin, delta methin estenvalerate, fenpropathrin, flucythrinate, fluralinate, triflumuron, chlorfiazuron, teflubenzuron, hexaflumuron, flufenoxuron,

US-PAT-NO: 3953169
DOCUMENT-IDENTIFIER: US 3953169 A

TITLE: Paperboard impregnated with polyurethane resin

DATE-ISSUED: April 27, 1976

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Igarashi; Seiichi	Suita			JA
Shirakawa; Kin-ichi	Ibaraki			JA
Kimura; Kazuo	Kobe			JA
Ogino; Akira	Shinsenri-Higashi			JA

US-CL-CURRENT: 8/192; 428/425.1, 428/537.5, 528/73, 528/77, 528/83, 8/DIG.11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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☐ 22. Document ID: US 3886226 A

L7: Entry 22 of 22

File: USPT

May 27, 1975

US-PAT-NO: 3886226
DOCUMENT-IDENTIFIER: US 3886226 A

TITLE: Polyurethane composition

DATE-ISSUED: May 27, 1975

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Asai; Kiyotsugu	Kawasaki			JA
Kawabata; Toshihiko	Tokyo			JA
Sakai; Koichi	Tokyo			JA
Fukuda; Kiyo	Yokohama			JA
Nagahisa; Seiji	Kawasaki			JA
Ichikawa; Toshiyuki	Tokyo			JA

US-CL-CURRENT: 528/28; 428/425.6, 428/429, 525/440, 525/446, 528/26, 528/29, 528/38, 528/49, 528/61, 528/65, 528/68

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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- flucycloxuron; or novazuluron. In another embodiment, the botanical compound comprises pyrethrum; nicotine; camphor; turpentine; rotenone; limonene; or neem oil. In another embodiment, the antibiotic comprises avermectins. In another embodiment, the fumigant comprises methyl bromide; ethylene dichloride; sulfur fluoride; chlorothene; or paradichlorobenzene. In another embodiment, the repellent comprises dimethyl phthalate; dibutyl phthalate; benzyl benzoate; N-butyl acetanilide; dimethyl carbate; or diethyl toluamide. In another embodiment, the inorganic compound comprises sulfur; mercury; thallium; antimony; copper arsenate; inorganic fluorides; boric acid; disodium octaborate; or silica gels.
- 10 In another embodiment, the agricultural additive is a herbicide comprising an ALSase inhibitor, an aromatic carboxylic acid, chloroacetamide, a triazine, an ESPSase inhibitor, an ACCase inhibitor, dinitroaniline compound, bentazon, a halohydroxybenzonitrile, a diphenyl ether, an isoxazolidone, paraquat or a mixture thereof.
- 15 In another embodiment, the ALSase inhibitor comprises a sulfonyleurea, a imidazolinone, or a triazoloypyrimidine sulfonyleanilide. Examples of sulfonyleureas include, but are not limited to, chlorsulfuron; chlortoluron-ethyl; nicosulfuron; rimsulfuron; thifensulfuron; metsulfuron; sulfometuron-methyl; or bensulfuron-methyl. Examples of imidazolinones include, but are not limited to, imazequin; imazethapyr; imazapyr; or imazamethabenz. An example of a triazoloypyrimidine sulfonyleanilide includes, but is not limited to, flumetsulam. In another embodiment, the aromatic carboxylic acid comprises a phenoxycarboxylic acid, a benzoic acid, or an aryloxyphenoxycarboxylic acid. Examples of phenoxycarboxylic acids include, but are not limited to, 2,4-dichlorophenoxycarboxylic acid (2,4-D); or 2,4,5-trichlorophenoxycarboxylic acid (2,4,5-T). Examples of benzoic acids include, but are not limited to, chloramben. Examples of aryloxyphenoxycarboxylic acids include, but

Term	Documents
ONE.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	7211299
ONES.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	343150
COMPONENT.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1766486
COMPONENTS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1938757
COMPOSITION.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1408429
COMPSN.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	449324
COMPSNS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	113691
COMPOSITIONS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	469379
POLYURETHANE[DWPI,TDBD,EPAB,JPAB,USPT,PGPB]	50716
POLYURETHANES[DWPI,TDBD,EPAB,JPAB,USPT,PGPB]	2475
POLYISOCYANATE.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	52877
(ONE COMPONENT COMPOSITION AND POLYURETHANE [TI] AND POLYISOCYANATE AND POLYESTER).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	22

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- are not limited to, diclofop-methyl; fluzafop-butyrl; or quizalafop-ethyl. In another embodiment, the chloroacetamide comprises alachlor, metolachlor, propachlor, butachlor, diphenamide, napropamide, promamide, propanil, or acetochoir. In another embodiment, the triazine comprises a chlorinated s-triazine; a methoxy s-triazine; a methylthio s-triazine; or an asymmetrical triazine. Examples of chlorinated s-triazines include, but are not limited to, atrazine, cyanazine, cyprozin, simazine, procyzazine, or propazine. Examples of methoxy s-triazines include, but are not limited to, atraton, prometon, secbumeton, or simeton. Examples of methylthio s-triazines include, but are not limited to, ametryn, prometryn, terbutryn, simetryn, or desmetryn. An example of an asymmetrical triazine includes, but is not limited to, Metribuzin. An example of an ESPase inhibitor includes, but is not limited to, glyphosphate. In another embodiment, the ACCase inhibitor comprises an aryloxyphenoxypionate or a cyclohexenone. Examples of aryloxyphenoxypionates include, but are not limited to, diclofop-methyl; fluzafop-butyrl; or quizalafop-ethyl. Examples of cyclohexenones include, but are not limited to, sethoxydim, clethodim, alloxylim, or cycloxydim. In another embodiment, the dinitroaniline compound comprises a methylaniline herbicide or a sulfonylamine. Examples of methylaniline herbicides include, but are not limited to, trifluralin, pendimethalin, benefin, dinitramine, fluchloralin, or profluralin. Examples of sulfonylamine compounds include, but are not limited to, oryzalin or nitralin. In another embodiment, the halohydroxybenzonitrile comprises bromoxynil or isoxynil. In another embodiment, the isoxazolidone comprises clomazone.
- 25 The advantages of the present invention vary with the particular application. In cellulosic plastics manufacturing, the application of this invention provides the economic benefit of fewer processing steps in addition to fewer heat histories in the production of the cellulosic plastic materials. Moreover, the process of the present

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ONES.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	343150
COMPONENT.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1766486
COMPONENTS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1938757
COMPOSITION.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1408429
COMPSN.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	449324
COMPSNS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	113691
COMPOSITIONS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	469379
POLYURETHANE[DWPI,TDBD,EPAB,JPAB,USPT,PGPB]	50716
POLYURETHANES[DWPI,TDBD,EPAB,JPAB,USPT,PGPB]	2475
POLYISOCYANATE.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	52877
(ONE COMPONENT COMPOSITION AND POLYURETHANE [TI] AND POLYISOCYANATE AND POLYESTER).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	22

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DATE: Friday, September 20, 2002 [Printable Copy](#) [Create Case](#)

invention permits the inclusion of a higher amount of a functional additive by providing more uniform distribution of the material in the cellulose ester.

Another advantage of the present invention with respect to agrochemicals involves the production of a granular material with timed and sustained release properties, lower handling toxicity by virtue of reduced dusting and encapsulation of the functional additive, and increased UV light stability or hydrolytic stability of sensitive materials.

The process of the present invention can also produce a cellulose ester blend, wherein the rate of release of the functional additive can be controlled. The cellulose ester blend produced by the process of the present invention can be used to deliver drugs and other medicaments.

The process of the invention comprises adding a suitable functional additive, or additives package, to a solution of a first carboxylic acid and a cellulose ester. In one embodiment, the cellulose ester can be cellulose acetate, cellulose acetate phthalate, cellulose acetate butyrate, cellulose acetate propionate, cellulose acetate, carboxymethylcellulose acetate propionate, cellulose acetate butyrate, carboxymethylcellulose acetate, cellulose acetate succinate or a mixture thereof. In a preferred embodiment, the cellulose ester is cellulose acetate, cellulose acetate propionate, or a mixture thereof. In one embodiment, the degree of substitution of the cellulose acetate is from 0.5 to 3.0, preferably 1.5 to 2.8, more preferably 1.8 to 2.2. In another embodiment, the cellulose acetate propionate has a degree of substitution of propionyl of from 0.1 to 3.0, preferably from 1.5 to 2.0. The degree of substitution of acetyl is from 0.01 to 1.0, preferably 0.05 to 0.5.

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DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L7</u>	one component composition and polyurethane [ti] and polyisocyanate and polyester	22	<u>L7</u>
<u>L6</u>	one component composition and polyurethane [ti] and polyisocyanate	29	<u>L6</u>
<u>L5</u>	one component composition and polyurethane [ti] and polyisocyanate	0	<u>L5</u>
<u>L4</u>	one component composition and polyurethane [ti] and tetra-n-butyl titanate	0	<u>L4</u>
<u>L3</u>	one component composition and polyurethane [ti]	37	<u>L3</u>
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<u>L1</u>	one component composition	932	<u>L1</u>

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- The selection of the first acid can vary depending upon the end-use of the resulting cellulose ester blend. The mixture of carboxylic acid and water is chosen to dissolve the cellulose ester and functional additives. In one embodiment, the first acid is a carboxylic acid. In another embodiment, the first acid is an aqueous carboxylic acid. In a preferred embodiment, the first carboxylic acid is acetic acid, propionic acid, butyric acid, or a mixture thereof, optionally, containing an amount of water in sufficient quantities to dissolve the cellulose ester and functional additives. Preferably, the first acid is present in the amount of 60 to 90 % by weight and the water is from 2 to 15 % by weight of the admixture in step (a).
- 10 More preferably, the first acid is present in the amount of 10 to 90 % by weight propionic acid or butyric acid to 30 % by weight water.
- 15 The functional additive is present in the amount of 1 to 50 % by weight, preferably 1 to 20 % by weight, of the cellulose ester of step (a).
- In one embodiment, the functional additive is added to a solution of the cellulose ester and first carboxylic acid followed by stirring the admixture to dissolve the functional additive to make a homogeneous solution. As described above, preferred functional additives include plasticizers, UV stabilizers, and dyes. In one embodiment, the amount of the plasticizer(s) is from 1 to 40 % by weight of the cellulose ester in step (a), preferably from 15 to 25 % by weight of the plasticizer. In a preferred embodiment, the functional additive is a plasticizer.
- 25 Once the cellulose ester and functional additive have been dissolved, the admixture is contacted with an aqueous precipitating agent in order to coprecipitate the cellulose ester/functional additive blend. The term "aqueous precipitating agent" is defined as a solution comprising water and, optionally, one or more other components. In one embodiment, the aqueous precipitating agent is water. In
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File: PGPB

Aug 1, 2002

PGPUB-DOCUMENT-NUMBER: 20020103292
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020103292 A1

TITLE: Aqueous polyurethane dispersions containing modified hydrazide groups and their use in one-component thermoset compositions

PUBLICATION-DATE: August 1, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Blum, Harald	Leverkusen	PA	DE	
Gindin, Lyubov K.	Pittsburgh	PA	US	
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Jacobs, Patricia B.	Pittsburgh	TX	US	
Lee, Sze-Ming	Houston	OH	US	
Long, Brian	Clarington	PA	US	
Sylvester, Robert A.	Carnegie	PA	US	
Wicks, Douglas A.	Mt. Lebanon		US	

US-CL-CURRENT: 524/845, 523/400, 523/402, 523/414, 523/415, 524/501, 524/502, 524/507, 524/555, 524/588, 524/589, 524/590, 524/591, 524/593, 524/596, 524/600, 524/606, 524/608, 524/612, 524/816, 524/831, 524/838, 524/839, 524/840, 524/858, 524/860, 524/864, 524/869, 524/871, 524/877, 524/879, 525/123, 525/124, 525/329.4, 525/418, 525/474, 525/504, 525/509, 525/523, 525/528

Full	Title	Chation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC
Draw Desc	Image										

☐ 2. Document ID: US 20020068800 A1

L7: Entry 2 of 22

File: PGPB

Jun 6, 2002

PGPUB-DOCUMENT-NUMBER: 20020068800
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020068800 A1

TITLE: Polyurethanes containing secondary amide groups and their use in one-component thermoset compositions

PUBLICATION-DATE: June 6, 2002

INVENTOR-INFORMATION:

wherein the blend is a controlled release matrix system.

Additionally, this invention relates to a method for controlled release of an agricultural additive comprising dispensing the controlled release matrix system, further comprising:

- (a) at least one biodegradable cellulose ester, and
- (b) at least one agricultural additive,

wherein components (a) and (b) form a controlled release matrix system, in the proximity of the target for the additive and for a period of time sufficient to undergo biodegradation and release the additive.

This invention also relates to a method for controlled release of a pharmaceutical additive in the proximity of a target for the additive, comprising dispensing the controlled release matrix system, comprising:

- (a) at least one biodegradable cellulose ester, and
- (b) at least one pharmaceutical additive,

wherein components (a) and (b) form a controlled release matrix system, in the proximity of the target for the additive and for a period of time sufficient to undergo biodegradation and release the additive.

NAME	CITY	STATE	COUNTRY	RULE-47
Gambino, Charles A.	McDonald	PA	US	
Henderson, Karen M.	Coraopolis	PA	US	
Jacobs, Patricia B.	Pittsburgh	PA	US	
Lee, Sze-Ming	Houston	TX	US	
Sylvester, Robert A.	Carnegie	PA	US	

US-CL-CURRENT: 525/456

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC
Draw Desc	Image										

☐ 3. Document ID: US 20020068790 A1

L7: Entry 3 of 22

File: PGPB

Jun 6, 2002

PGPUB-DOCUMENT-NUMBER: 20020068790

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020068790 A1

TITLE: Aqueous polyurethane dispersions containing pendant amide groups and their use in one-component thermoset compositions

PUBLICATION-DATE: June 6, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
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Long, Brian	Clarington	OH	US	

US-CL-CURRENT: 524/589, 524/839

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 4. Document ID: US 20020068789 A1

L7: Entry 4 of 22

File: PGPB

Jun 6, 2002

PGPUB-DOCUMENT-NUMBER: 20020068789

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020068789 A1

TITLE: Aqueous polyurethane dispersions containing secondary amide groups and their use in one-component thermoset compositions

PUBLICATION-DATE: June 6, 2002

INVENTOR-INFORMATION:

In addition, this invention further relates to a controlled release matrix system, comprising a homogeneous mixture of:

(a) at least one biodegradable cellulose ester; and

(b) at least one agricultural additive or pharmaceutical additive;

wherein components (a) and (b) form a controlled release matrix system.

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This invention further relates to a controlled release matrix system, consisting essentially of a homogeneous mixture of:

(a) at least one biodegradable cellulose ester; and

(b) at least one agricultural additive or pharmaceutical additive;

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wherein components (a) and (b) form a controlled release matrix system.

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This invention provides for an efficient method of preparing cellulose ester blends that contain functional additives. It also provides a controlled release matrix system than can release a functional additive.

Additional advantages of the invention will be set forth in part in the description which follows, and in part will be obvious from the description, or may be learned by practice of the invention. The advantages of the invention will be realized and attained by means of the elements and combinations particularly pointed out in the appended claims. It is to be understood that both the foregoing

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